

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY  
(SUPPLEMENTARY SHEET)

International file number PCT/EP2004/053023

---

**Re Point V.**

Reference is made to the following document

**D1:** DE 44 16 826 A1 (SCHULZE, STEFFEN, DIPL.-ING., 28865  
LILIENTHAL, DE; FAHRENWALD, RENE,) November 23, 1995  
(1995-11-23)

**1 NOVELTY AND INVENTIVE STEP**

Document D1 is considered the most proximate related art.  
It discloses (the references in parentheses refer to this  
document, see Figure 1):

*An ultrasonic flow sensor for measuring the volumetric  
flow rate of a flowing medium through a flow channel  
having a transducer array (2, 3, 4) which is situated  
within the flow cross section of the flow channel and  
which generates ultrasonic waves (9) which propagate in  
the flow cross section of the flow channel transversally  
to a flow direction (6) of the flowing medium, having a  
transmitting element and two receiving arrays,*

wherefrom the object of independent **Claim 1** differs by  
the fact that:

the ultrasonic transducer has no interlaid arrangement of  
the transducer elements which act alternatingly as  
transmitting and receiving elements, but there is one  
transducer which transmits and two arrays which receive.

- 1.1 The subject matter of **Claim 1** is therefore novel (Article  
33 (2) PCT) (see also Note 2.1).

g 1322954016

The object to be achieved with the present invention may therefore be seen in that a symmetric transmitting and receiving characteristic is to be achieved.

The approach for achieving the object proposed in **Claim 1** of the present application includes an inventive step for the following reasons (Article 33(3) PCT):

An ultrasonic transducer which has an interlaid arrangement of transducer elements which act alternately as transmitting and receiving elements is not described in the related art, nor is it suggested therein.

- 1.2 **Claims 2 through 10** are dependent on **Claim 1** and therefore also meet the PCT requirements regarding novelty and inventive step.

## **2 ADDITIONAL NOTES**

- 2.1 **Claim 1** does not meet the requirements of Article 6 PCT, because the subject matter of the patent application is not clearly defined. The claim attempts to define the object via the result to be achieved; this only provides the object to be achieved without offering the technical features required for achieving this result.

Therefore, the feature

*...so that all emitted individual sound waves (27)  
interfere to form common wave fronts (28)*

has not been taken into account.

- 2.2 Contrary to the requirements of Rule 5.1 a) ii) PCT, neither the relevant related art disclosed in document **D1** nor that document are mentioned in the Description.